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New Social Risks in the European Knowledge Society and Higher Education

Education and Culture Socrates

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Higher education and the social models of the European knowledge society

The Netherlands

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Table of Content

1. Introduction

This country report contains the Dutch contribution to Work Package 3 of the NESOR-project 'Globalised Knowledge Society, New Social Risks and Higher Education' which is conducted within the framework of the Socrates programme. For the project a partnership of research teams in 6 EU countries has been build, coordinated by the University of Barcelona.

Work Package 3 is devoted to the social models developing in the countries participating in the project, the role of higher education in mitigating the social risks perceived in these countries and the role and connections with the demand side e.g. the business community in this respect. Work Package 3 is coordinated by the Department of Industrial Sociology of the Hungarian Academy of Sciences in Budapest.

Main issues

The main issues defined for Work Package 3 are:

- to describe and understand the varieties of European social models;
- to picture the varieties of higher education policies, systems and practices in the countries participating in the NESOR project;
- to identify the specific role and needs of the demand side of the labour market.

These issues have been elaborated into a questionaire by the coordinators of Work Package 3. The questionaire contains a number of concrete themes and topics. They were discussed at the kick-off meeting of the project in Nijmegen and serve as guidelines to structure literature and documentation research and interviews with stakeholders.

Methodology

For the Work Package a survey of literature and policy documents has been executed, covering the whole range of issues involved: social model, social policy, new social risks, higher education policy, higher education and labour markets, connections between higher education and the business community. Key policy documents were analysed in-depth to get a good picture of the views, opinions and initiatives of stakeholders involved in the discourse.

Furthermore, a limited number of interviews with representatives of stakeholders were conducted to gather additional information to complete the picture: governmental agencies, policy advisory boards, higher education institutes, the business community.

Structure of the report

This report is structured according to the guideliness provided by the coordinator.

The second chapter describes the actual debate on the revision of the Dutch social model from a traditional welfare state into a more activating participation society within the context of a rising knowledge based society.

Against this background, the third chapter focusses on policies and practices in the system of higher education to mitigate the social risks perceived to be connected with a knowledge based society. Programmes of the government and other agencies involved are discussed.

In the fourth chapter, the role of the demand side of higher education is analysed, with an emphasis on connections between HE institutes and the business community. It is presumed that such connections can have a double function. They can provide opportunities for solving problems related with the so-called 'innovation paradox' e.g. shortcomings in the application of new knowledge in user contexts. They can also provide opportunities to improve labour market flexibility by increasing employability and mobility of higher education graduates.

In the fifth chapter the actual labour market position of HE graduates will be described..

2. Socioeconomic policy in the context of the Lisbon strategy

The first question we address is how the core elements of the Lisbon strategy are integrated in Dutch socioeconomic policy. What role do Lisbon priorities play in policies and processes aimed at revising the Dutch social model in the context of a globalised knowledge based society?

Discourse of government and social partners

The question of how to reform Dutch welfare state arrangements vis á vis the new realities of global competition has aroused a lot of debate in the Netherlands during the past decade. The debate found its way to a recent advice on mid-term socioeconomic policy of the Social and Economic Council, the SER. The SER is the principal advisory board of Dutch government for socioeconomic policy. It is a central platform for consultations of government and social partners, with representatives of various ministries, employers associations, trade unions and independent experts. The SER acts at the national level.

The SER-advice was published at the end of 2006. It is a basic policy document that set the agenda for mid-term social and economic policy for the period untill 2015. The advice has a central place in the actual discourse regarding the adaptation of innovation, labour market and training arrangements in the light of Lisbon objectives. It is an important document, because the recommendations are subscribed to by both employers ánd trade unions unanimously.

SER on mid-term socioeconomic policy

The SER pleads for an offensive socioeconomic policy strategy aimed at 'further developing the welfare state into an activating participation society where everybody participates according to his capabilities'. In the view of the Council, maximum use and development of economic potential requires an adaptation of socioeconomic institutions (in line with the Lisbon strategy), an enlargement of reactive capabilities of all economic actors and a strategic focus on economic activities with a higher knowledge intensity. What is needed are a more entrepreneurial culture, more space for economic

actors at lower levels to develop their own potential and more investments in education and training at all levels. Available arrangements for work, income and training should be reshaped to reinforce people's position on the labour market by raising and broadening their qualifications (SER, 2006).

The SER defines three basic priorities:

1. Strengthening the growth potential of the economy through increased productivity.
2. Development of the social model from a welfare state to an active participation society.
3. More decentralisation and differentiation in the system of labour relations.

We focus on the first and second priority, which are particularly relevant for this study.

Strengthening growth potential

Besides more stimuli for entrepreneurial behaviour, the first priority requires *a reinforcement of the innovative capacity of society*. Higher public investments in education, research and innovation are necessary means to reach this objective. In this regard, the SER subscribes to the arguments and recommendations of the Innovation Platform (IP), laid down in the *Knowledge Investment Agenda 2006-2016* (see: Dutch country report WP2). Not only higher education should be stimulated, according to this agenda. Investments along the whole line of the educational infrastructure are needed to safeguard connection of all people with the rising knowledge society. Both highly educated knowledge workers as well as craftsmen and workers with medium and lower qualifications are pillars of a knowledge society, in the view of the IP and the SER.

The SER recommends a.o. these specific actions to reinforce innovative capacity:

- higher public *investments at all levels* of initial education, starting with pre-school education;
- more public and private *investments in higher education*, coupled with an ambition for excellence, more collaboration between institutes and more influence of the demand side;
- more *focus and mass on key areas* where Dutch research is strong already, like f.i.: nanotechnology, biomedical technology, food research, clean energy and watermanagement;
- reinforcement of the knowledge and innovation system by furthering policies aimed at '*knowledge circulation'*; more influence of the business community, more attention for the European dimension of the system;
- improvement of the instruments for '*knowledge adopters'*, in particular small and medium sized companies; extension of financial facilities for innovation (subsidies, vouchers, contracts with professional colleges, polytechnics and universities);
- ease restrictions on the deployment of foreign '*knowledge workers'* on the Dutch labour market;
- continuation of the Innovation Platform as a *thinktank and consultancy agency* for the government, the social partners and the scientific community.

Furthermore, the SER recommends stimulation of '*social innovation'* at company level, expressed in the formula: dynamic organisations, flexible work, smart management. Maximum use of competences at firm level increases the chances of a succesfull adoption of knowledge and innovations in practice and thus raises the effectiveness of investments in the knowledge infrastructure.

Building an activating participation society

The second priority requires a *change in labour market policies and institutions*, according to the SER: 'Institutions in the field of labour market and social security should both stimulate economic dynamism as well as serve the needs for greater individual diversity in careers. The system of employment, training and income should give space to variations in life courses and transitions between work, care and education. Investment in human capital in the economic active period is a strong

instrument to stimulate mobility on the labour market' (SER, 2007). This view is inspired by the model of a transitional labour market with the focus on active labour market policies and life long learning (De Gier, 2007).

The SER proposes to modernize the system of employment, work and training with a two-pillar model:

a. The pillar of participation, addressing *investments in human capital*. The SER recommends to develop a coherent set of measures in the field of education, training, child care, participation in work, prevention, reïntegration and tax policy. Concrete recommendations are:
   - to introduce an individual facility for training in the framework of life long learning; this should be an individual persons' right, not bounded to a specific company or economic sector;
   - to increase participation at the bottom of the labour market by specific tax measures;
   - to develop a 'personal service market', at the bottom side of the labour market, that can offer extra job opportunities to lower qualified people who can not keep up with qualification demands in knowledge intensive sectors;
   - to improve the labour market position of vulnerable groups, by combating early school leave, strengthening qualification levels, supplying more on-the-job training places.
   - to increase participation in work of older employees by stimulating age-directed personnel policies in companies.
b. The pillar of income protection, addressing *social security systems*. The SER has no concrete recommendations with regard to this pillar. Social security systems have been reformed already to a substantial degree in recent years, with the aim to make them more compliant with active labour market policies. The SER now advices to optimize implementation of these reforms, to improve the organizational infrastructure of the new systems and to continue improvement of the execution of the new rules.

In the view of the SER, further decentralisation and differentiation of labour relations will be supportive to these measures. Labour relations are strongly regulated now on a

central level by means of collective labour agreements. If actors on lower levels - sectors, companies, workers - have more opportunities to create tailormade arrangements within the framework of less detailed collective regulations, flexibility and mobility on the labour market will increase, what contributes to the development of a transitional labour market.

Conclusion

Overlooking the arguments, we can conclude that the SER - at central policy level - at once adresses the problem of the 'innovation paradox' as a key issue in the Dutch debate regarding the knowledge economy, and a number of problems observed as key social risks connected with the rise of a knowledge economy in the Netherlands: a) insufficient and unequeal acces to knowledge for certain groups; b) weak national commitment to lifelong learning; c) an increasing gap between low and high educated workers; and d) critical labour market transitions during the life course (see: Dutch country report WP2). Building better relationships between knowledge producers and knowledge users, strengthening human (educational) capital at all levels of the economy and increasing labour market flexibility through a reinforcement of employability of people during the life course, are key elements of the strategy the SER proposes to tackle these risks. Policy actors appear to be aware of the problems. They try to formulate solutions, in line with the Lisbon strategy.

3. Higher education policies and practices to mitigate social risks

The socioeconomic proposals outlined above constitute an important background for the ongoing debate about adaptations in higher education in the Netherlands. Against this background, we proceed now with the question how higher education anticipates the developments and social risks envisaged with the rise of the knowledge society. We will do this in two steps. First, we focus on policies and practices in the system of higher education itself. Secondly, we will focus on policies and practices to strengthen the connections between the system of higher education and the demand side as constituted by the business community and the professional fields in the wider society.

Debate dominated by the innovation paradox

First of all, it has to be stressed that the debate in the Netherlands regarding the role of higher education in the knowledge society is dominated by the 'innovation paradox' e.g. the fact that the Dutch innovation system performs well with regard to the production of knowledge but lags behind when it comes to the application of knowledge in products, processes, companies and other user contexts. Thus, the innovative capacity of the system is not fully used. Many efforts now go into measures to tackle this problem and strengthen the relations between the production and application of knowledge. We will come back to this point in the next chapter.

… less by social risks

Social risks are debated to a much lesser degree. Observers perceive four major social risks connected with the rise of the GKS (see: Dutch country report WP2):

a) insufficient and unequeal acces to knowledge for certain groups;

b) weak national commitment to lifelong learning;

c) an increasing gap between low and high educated workers;

d) critical labour market transitions during the life course.

As the Dutch WP2-country report concludes, there still seems to be a broad concensus about the traditional task of the higher education system in preventing social inequality,

although oppositional voices are heard that doubt if it should continue to fullfill this function in the future. Equality of chances is still the dominant principle. Access to higher education should be open to everybody, irrespective of origin, class, income, social position etc.

Within this context, institutes for higher education define stimulating life long learning and improving the employability of graduates and alumni as high priorities. We will focus now on programmes developed by universities, colleges for higher professional education and other agencies to realize these objective. Not with the intention to give an exhaustive overview, but first and foremost to highlight some of the policies and practices that might be helpfull in this respect. The transnational report of WP2 concludes that the lack or neglect of attention for life long learning and employability in increasing flexible labour markets could be seen as new social risks in the GKS. Therefore, it is relevant to search for attempts from within the system to mitigate these risks.

Three types of programmes

Three types of programmes can be distinguished in this regard:

- programmes to stimulate transitions from secondary to higher education
- programmes to reinforce employability and mobility of graduates
- programmes to improve access to higher education for new ‘target groups’.

These programmes are in line with the Lisbon objectives. They try to open up HE for broader groups of young people ánd for people at older ages in the context of life long learning.

1. Stimulation of transitions from secondary to higher education

The first type of programmes aimes at a better transition from secondary to higher education. These programmes cover both general as well as professional education. They are directed towards transitions from secondary general education to academic education, from secondary vocational education to higher professional education and from higher professional education to the polytechnics or the general universities. We describe some typical initiatives, here.

- Together with HE-colleges and VET-schools the government runs a long term programme to *increase the number of students in the béta- and technical disciplines.* It consists of a mix of public education, targeted information campaigns, subsidies for initiatives of schools, special projects, work experience periods for students etc..The programme is aimed at entrance in medium-level vocational education but it continues the line through to higher technical education. The initiative catches two objectives at once: a) technical studies give graduates good starting points for a professional career in later life; and b) more graduates from technical studies relaxes the tensions on the labour market due to shortages of qualified technical personnel.
- Universities and polytechnics have also developed their own programmes to attract more students in béta- and technical disciplines. Programmes consist of measures aimed at *improving of the relationships with secondary schools*, like f.i.:
  - information campaigns on secondary schools in a region
  - open days for students and parents at technical faculties
  - short work experience periods for students in a real-life context
  - better collaboration with secondary schools, f.i. for study projects
  - training teachers and counselers of secondary schools at the university
  - establishing local networks of school teachers and academic researchers
  - deployment of students as (assistent-) teachers in secondary schools.

  Furthermore, within the HE institutes itself measures were taken. Guidance and counseling of bachelor-students has been improved. Tutoring and mentoring systems have been introduced. In some institutes, special ‘linking’-courses were developed to prevent students from dropping out early because of problems with specific subjects (mathematics).

- Several colleges for higher professional education (HBO) have introduced a *new type of qualification, called 'shortened HBO*'. This is a 2-year curriculum (normally it is 4 years) qualifying for 'assistant'-functions in higher occupations. It is an intermediate qualification between secondary VET and the full 4-year tertiary HBO qualification. It is aimed to give better VET-students the chance to get a higher education certificate. Such a a qualification improves f.i. the chances of medium qualified technicians to promote to management positions or specialist functions later in their career.
- In recent years, the *bachelor-master system* has been introduced in higher education, covering both professional colleges for higher education (HBO) and the universities (WO). A 4 years HBO-bachelor is comparable to a 3 years WO bachelor. This 3 years WO bachelor is intended to qualify for labour market entrance for WO students who are not able or not interested to complete a master-study.

Platform Betatechniek

This Platform is an agency established by the government to stimulate future supply of enough qualified betatechniciens. The target, inpired by the Lisbon strategy, is a 15% more graduates from technical higher education in 2015. The Platform promotes a coordinated action programme, covering the whole educational chain, from primary education to the labour market. Careers of the students are the central focus. Key elements are: building a better image, new didactical forms, innovation of curriculla, eductional products and processes, improvement of career orientation and counseling, strengthening personell management at schools, better collaboration within the educational 'chain'. The Platform has a special programm for higher education, called SPRINT. This programme provides additional finances for initiatives to improve entrance and graduation from betatechnical disciplines at higher professional schools and universities. All universities participate, actually, as well as 17 professional schools for higher education.

2. Reinforcement of employability and mobility of graduates

A second type of programmes aims at the reinforcement of the labour market position of graduates by increasing their employability and mobility. These programmes might include labour market monitoring and counseling and guiding instruments. But more relevant for this study are measures in the sphere of curricullar (re-)design that have an 'employability-effect'.

- Universities, polytechnics and professional colleges increasingly stress the need for *multidisciplinarity* in their curriculla. They open up opportunities for more flexibility in the design of learning trajectories. Programmes get a more modular structure, with the emphasis on specific (blocks of) courses. Students get more opportunities to design their own learning route. They get more options to take courses outside disciplinary boundaries. They can follow courses in other disciplines, at other institutes, within the framework of common agreements about the general curricullar structure and content. They can broaden their scope and qualification profile in this way.
- Universities, polytechnics and professional colleges have developed *new integrated study programmes* that combine knowledge from different disciplinary fields. These might be new interdisciplinary studies, crossing traditional boundaries, like biofysics, biomedical sciences, bioinformatics. But also combinations of traditional disciplines within integrated curricullar programmes are possible, like for instance qualifications as 'management and law' or 'health and sports' in higher professional education. Such 'double' qualifications improve opportunities for graduates on the labour market.
- Universities, polytechnics and professional colleges build up programmes with broad bachelors and further *differentiations in the master phase*. These differentiations might also *cross traditional boundaries* and thus provide better fits between qualifications and labour market demands. Differentiations usually have been developed after consultancy of actors in the professional fields of the disciplines and on the labour market.

Differentiation of master in fysics

To give an example: a university has split its master in fysics into 4 differentiations:

- a research master, qualifying for traditional jobs in scientific and applied research;
- a management master, qualifying for jobs in the management of research labs, technical departments, projects;
- an educational master, qualifying for traditional jobs as teacher in fysics at secondary and tertiary education;
- a communications master, qualifying for jobs in scientific marketing, communications, journalism.

Each of these 4 masters qualifies for a different occupational segment, but they build upon the same basic disciplinary knowledge. The differentiations were developed when research into labour market careers of graduates revealed that fysicians not only became employed in traditional fields like research and teaching, but also in the new fields of management, marketing and communications. These fields might be interesting for students who otherwise would not have choosen a fysics study.

These innovations in curricular design, programming and learning practices have led to a certain upgrading of the role of teaching in academic practice. Though research performance still is the main reference point for accountability of HE staff, teaching has gained status. In many universities and polytechnics there are special career lines now for teaching staff, partly distinguished from tasks, performances and career lines in research. Systems and instruments for personell management now also take specific requirements and capabilities for teaching into account, f.i. in job evaluations, performance ratings, staff training, career development.

3. Better access for 'target groups'

A third type of programmes aims at the improvement of acces to higher education for 'target groups', like women, older people and migrants, who tend to be underrepresented in higher education. Such programmes contribute to a reduction of inequality in this sense. They might also create extra opportunities for life long learning. Such programmes are less common in higher education, however. Reduction of

inequalities is not perceived as the highest priority for universities and professional colleges. However, several initiatives can be mentioned here.

- An important theme in the debate ís the *access of female students* to higher education. Though the total number of female students is rather high, they are underrepresented in the natural sciences and the technical disciplines. In close collaboration with the universities and the polytechnics the government has launched several campaigns and projects during the past years to increase the numbe of female students in these disciplines. Campaigns included measures like career oriëntation, career consultancy, public education, road shows, female scientific role models etc. Thus far, however, initiatives were not very successfull. The number of female students in natural and technical sciences is still rather low. They still are clearly overrepresented in human and social sciences. Higher education still is segregated along gender lines.
- Recently, more attention has been given to the *promotion of academic careers of female scientists* as an instrument to break through gender segregation in higher education. Several universities have defined concrete strategies and objectives to increase the number of female employees in (higher) research and teaching positions. Though the number of women in higher academic positions is still very low, they have more chances now to become appointed at chairs previously reserved for male colleguas. A side-effect is that they have a function as role models, to attract more female students. Again, these measures are particularly relevant for the natural and technical sciences, to a lesser degree for the humanities and the social sciences.
- Older persons will become a target group for institutes of higher education, as life long learning gains importance in the future. Actually, *supply of courses for older people* is limited, however. There are programmes for older people at some universities, but they are usually do not qualify for the labour market or for occupational careers.
- An exemption is the Dutch *Open University*, with its supply of courses for distance learning. These courses can be targeted to the needs of older persons, who want to take a second chance to follow an academic study, make a further step in their career or improve their position on the labour market. It is expected that opportunities for open learning and distance learning at later age will increase with the rise of facilities for life long learning (cfr. interview Leijnse).

- There is *less attention for migrant students* in higher education. Migrants are clearly underrepresented at the universities. Some experts state that this is a matter of unequal access. Others have the opinion that it is not a problem of higher education, but that it is a structural problem of education as a whole, starting with disadvantages in primary and secondary education already. Solutions should first of all be found in these realms (cfr. interview Noorda).

Open University and life long learning

The Open University has taken some inititatives to stimulate life long learning e.g. learning of people at later age, at a later stage in life. The OU wants to establish a network with schools for higher professional education to develop tailor-made educational programmes that can be used as a 'second learning route'. Older people can get a bachelors degree then with this system. Prognoses point to large mid-term deficits of bachelors on the labour market and better and more flexible acces for older people to higher education might contribute to solve this problem. The OU also develops e-learning facilities, that make it easier for older students to make connections with their work situations. They idea is to develop a broader open source learning environment in the long run, with free access to a package of services in the sphere of counseling, assessment and certification. Comparable initiatives aimed at the universities were less succesfull, thus far.

As it has been said, the initiatives in this field do not have a central place in the policies and practices of institutes for higher education. Attracting students in technical disciplines and improving the labour market position of graduates have higher ranks at the priority list.

Conclusion

Overlooking the arguments, we can conclude that the discourse in higher education focusses on innovation, less on (new) social risks. Furthering equal chances and raising the number of people that get higher education are still important priorities - despite oppositional voices - but the major stimulation programmes first and foremost follow traditional pathways: a) improvement of entrance in the system of young students through better connections with secondary education and b) improvement of the transition to the labour market of young graduates through broader qualifications for

broader deliniated professional fields. There still appears to be less attention for programmes aimed at life long learning, better opportunities for people at an older age, and better access for groups which are thus far underrepresented.

4. Role of the demand side and connections with higher education

After having described policies and practices at the supply side of higher education (the HE institutes) we now proceed at the demand side, with a special focus on relationships between higher education, the labour market and the business community. Such relationships are relevant in a double sense. At the one side, connections between professional institutes and entreprises can stimulate application of knowledge, thus reducing the gap between knowledge users and knowledge producers. At the other side, they can provide extra career opportunities for graduates, thus facilitating labour market entrance, mobility and flexibility.

Different visions

Before going into this discussion, we want to remind the fact that actors might have different views regarding the role and functions assigned to higher education in the GKS. These views will influence their perception of the role of the demand side and the need for relationships with the demand side e.g. the business community. Grossly speaking - and caricaturizing a bit - two views can be distinguished.

The first view pleads for more openness of the HE system towards economy and society, more interactions with the demand side e.g. the business community and greater accessibility for new 'target groups', at risk in the GKS. This point of view can be found in segments of higher professional education (HBO), in particular in segments related to medium-tech sectors of the economy, dominated by small and medium sized companies characterized primarily by the application of well developed technology. Practical knowledge and competence based learning play a role in the debate about educational reform in these segments (cfr. interview Leijnse).

The second vision stresses the specific and distinguished character of the HE system. It is more satisfied with the actual performance of the system and puts more value on the systems' internal processess than on interactions with the environment e.g. the business community. It opts for reinforcement of the already strong points of HE, a focus on fundamental research, more excellence in education and, in general, more selectivity in access to higher segments of the system (top academies, top masters). We find this

vision in scientific education and research (WO), in particular in segments that are closely related to internationally oriënted fundamental research. In these segments the need for theoretical knowledge and academic learning are stressed in the debate (cfr. interview Noorda).

The polytechnics are somewhat in between these typical positions. The polytechnics, especially their technology-driven segments, stress sound disciplinary scientific knowledge, but they also try to organize interactions between different academic disciplines and between science and agencies in the context of the application of science, like r&d-institutes, research laboratories and (large) companies. The need for theoretical as well as for more applied and practical knowledge are stressed in these contexts.

In the following section we focus on the professional colleges for higher education and the polytechnics. They appear to be more inclined to establish connections with the economic environment than the general academies. The demand side plays a more important role, here. Private companies and networks are involved f.i. in (co)financing of projects, (co)financing of teaching chairs, consultations regarding research programmes, contributions to curriculla and courses, development of collaborative study projects, supplying work experience periods for students etc. This is less common in general universities. As far as the general universities open themselves up to the environment, they first of all establish connections with other actors within the scientific system itself. That, of course, might also be economic actors (like private research labs).

Various policies and practices to improve connections

Actors and agencies in the field have developed various policies and practices to improve the connections between higher education and the demand side e.g. the economy or the business community. We will discuss some of them below. Again, we want to emphasize that it is not an exhaustive overview, but an impression of typical practices that are developed during the past years. These practices are especially favoured and supported by the government and the field of science and technology itself.

- entrepreneurship in HE programmes

- small business centres at HE institutes
- lectureships for applied research in HE institutes
- start ups and spinn offs
- establishment of research networks
- contract research and consultancy services
- mobility of researchers
- informal contacts

The focus is on formal mechanisms of knowledge transfer. However, formal mechanisms are only the 'top of the iceberg', as a Dutch technoloy council concludes. Below the top, informal contacts between users and producers are often far more important (AWT, 2003).

1. Entrepreneurship in HE programmes

Stimulation of entrepreneurship in higher education is a highly favoured instrument of policy agents in the field of technology and economy. An entrepreneurial attitude is considered to be an essential qualification for graduates to find their way in a dynamic and flexible knowledge economy. During their study, students should already start to develop entrepreneurial skills. . Several HE colleges, polytechnics and universities have introduced special courses to learn 'entrepreneurial skills' in the regular curriculla. Courses often combine theoretical modules with experience in actual practice, f.i. in projects to start up a fictitious business, develop a scientific finding into a marketable product, explore the process of licensing and selling products etc. In several professional colleges and universities special teaching chairs for 'entrepreneurship' have been installed to stimulate and coordinate efforts in this field and establish relationships with interested parties in the environment.

2. Lectureships for applied research

A new phenomenon in the professional colleges for HE are lectureships for applied research. This is a programme supported by the government to better equip the colleges for knowledge development regarding applied research. Every college got facilities to establish a number of lectureships, which can cover the whole spectre of disciplines: alpha, beta, gamma. They are usually focussed on actual themes and trends having high priority in the professional field. One of the functions of the lectureships is to provide a platform for research and reflection about new developments in the profession (knowledge, methods, practices). Lecturars have facilities to organize 'knowledge circles' with teachers, researchers, students and practitioners in the field. Lecturars must become a kind of linking pin between the institute and the demand side, e.g. the professional environment of the discipline involved. This should led to more interactions and a better circulation of knowledge: from education to practice ánd vice versa.

3. Small business centres at HE institutes

Some professional colleges have established small business centres to provide an extra service to important actors at the demand side, i.e. small and medium sized companies. These centres also are a kind of linking pins. They act in two directions. They work inside-out. They can coordinate initiatives, projects, training programmes, knowledge etc. within the colleges that might be relevant for SME's and bring them to their attention in an efficiënt way. They can also work outside-in. They have contacts with the (local) business environment and observe problems and questions companies cope with and colleges might have an answer for. Firms and colleges can be brought together and define joint projects to tackle the problems. Students might participate in these projects and, thus, can get extra opportunities to experience working in a real business environment.

Smart Business Centre

One of the colleges for higher professional education has established a regional network of business entrepreneurs and lecturars and teachers. The goal is to develop, share and apply knowledge in a collaborative way to add value for small and medium sized companies. Fouders are companies from several sectors: electronics, installation, recycling, health care, software industry, banking and the contracting sector. Together with companies problems are tackled and innovative solutions are searched for, f.i. in fields like tooth hygiëne, hydrogen energy, home electronics (domotics), robotics for the recycling industry. Together with the local university the college participates in a centre to support start-ups in the technical field. Support includes a.o. business case diagnosis, coaching and mentoring of the entrepreneur, cheap financial credits, housing and laboratory facilities.

4. Spin-offs and start-ups

A new instrument - promoted at professional colleges, polytechnics and universities - are spin-offs and start-ups, e.g. new small business firms of (former) students, graduates and/or researchers to exploit a specific scientific finding on a commercial basis. Academic research often generates spin-offs, which have commercial market potential. This potential can not be realized within the institutes themselves, so they establish start-up firms under their umbrella. Firms get facilities in the sphere of housing, marketing, administration, accountancy, juridical support, promotion, communications etc. The institutes can also participate with financial start-up grants. Researchers can be deployed to assist the new firms. If start-ups succeed at the commercial market, they can become independent in the long run. Start-ups can provide extra labour market opportunities for graduates of the disciplines involved. They can be a stepping-stone to more permanent jobs in larger companies. In this sense, they have a specific role in a transitional labour market.

5. Establishment of research networks

There is a strong tendency towards more networking in several sectors of the Dutch economy, f.i. food industry, medical research, agribusiness, energy technology. Besides the traditional public and private r&d institutes, new organisational forms emerge with a

hybrid network-like character. Three types of r&d networks can be distinguished (NRLO, 1998; AWT, 2003):

- outsourcement constructions (from large companies to institutes for contract research)
- public-private partnerships (clusterprojects, programmatic structures, sectoral pps)
- pre-competitive research consortia.

Initiatives to establish a network might come from the scientific community, but often initiatives are also taken by the business community itself. Usually, experts from different disciplines and different institutions (universities, knowledge centres, in-company r&d labs) work together to generate new knowledge and further develop this knowledge into applicable industrial innovations. Within these networks traditional borders between fundamental and applied research appear to fade away, as well as the borders between the institutions in these fields. These networks can provide extra labour market opportunities for graduates. But they are typically transitional labour markets. Networks are usually temporary constructs, the jobs are usually temporary jobs. That requires a lot of flexibility at the side of the workers.

Wageningen Centre for Food Science

This Centre, established in 1997, is a collaboration of a number of large companies and knowledge institutes in food science. Participants are research labs of universities, technology institutes, large companies, governmental agencies and consultancy services. Thus, the network covers large parts of both the business community and the scientific community in the sector. The centre has defined a long range research programme, within which specific projects can be carried out by joint research teams of researchers from the participating companies, the private resarch labs and the universitary resarch groups. Researchers are usually hired by the centre via posting contracts. So, they stay in connection with their 'home base' and mutual exchange of knowledge can take place.

7. Contract research and consultancy services

Contract research and consultancy in commission for external parties, like economic sectors or companies, is a common practice in Dutch HE. For HE institutes, it provides an extra source of income, besides finances from the government and the scientific councils. Contract research and consultancy services are usually conducted by the research staff. They may be connected with regular research, but usually contract and

regular research are separated, with contract research often being a mere by-product or side-effect of fundamental research. However, in several institutes and disciplines, where contract research has become a substantial source of income, special departments have been established to facilitate contract research, because it requires other ways of operating than regular research. These departments can also function as transitional labour markets offering graduates stepping-stones to a career in science and technology.

8. Mobility of researchers

Mobility of researchers is particularly relevant when it crosses the boundaries of the scientific and the economic system, f.i. when scientists cross over to positions in companies or when specialists from companies get an appointment in universities or polytechnics, as managers, as teachers or as researchers. These kinds of cross-overs are stimulated, actually, both by the government as well as by the business community. Another form to promote mobility of researchers are joint projects, partly executed at the HE institute and partly in a company that takes part in the project. Furthermore, connections can be established when in-company researchers get the opportunity to make a Ph.d.-thesis at a university.

9. Informal contacts

As it has been said already, informal contacts between HE staff and business people provide good opportunities to establish better connections. Researchers in specific fields regularly meet each other at conferences, seminars, expositions etc. The internet highly facilitates further contacts. Both HE institutes and large companies stimulate these kinds of informal exchange.

Conclusion

Overlooking the arguments, we can state that initiatives are taken to bridge the gap between institutes for higher education and research and the business community, especially in the technical disciplines at professional colleges and polytechnics. Initiatives first of all are aimed at solving problems due to the innovation paradox. But doing so, they also can contribute to labour market entrance and employability of students and graduates. Establishing relations and networks with actors in professional

fields, they create transitional labour markets, that offer graduates stepping-stones to more permanent positions. This function of interrelations and networks is not always recognized by actors involved. It should get more explicit support.

5. Labour market trends and developments

In this chapter we describe major trends and developments on the labour market for graduates of higher education. After a short note on the role of the demand side with regard to further training, we focus on the labour market position of graduates. What are their prospects on the labour market? How is the actual state of affairs as regards supply and demand? What can be said about career prospects, opportunities and risks?

Role of employers in further training

Several interview partners emphasize the fact that graduation from higher education is not the end of the training trajectory of a student in higher education. In many cases, higher education only provides the initial basis upon which further training takes place in the private domain, at the job, under the responsibility of private companies. Many companies have their own internal labour markets with well developed in-company training facilities to qualify talented employees for specific positions in the company. For instance: traineeships are very popular in large technical companies and public institutes. Such traineeships usually combine further theoretical courses with practical experience periods in various departments and positions at the company. Sometimes, international exchanges are included in the programmes. Usually, it takes several years to accomplish a traineeship. Traineeships are highly selective instruments. They presuppose an adequate general academic basis, upon which a reservoir of company-specific knowledge, experiences and attitudes can be build.

It is argued by some experts that in this regard, there is a difference between the high-tech segment with the large companies, employing academic graduates, and the low-tech segment, with many small and medium sized companies, that primarily employ graduates of higher professional colleges. The former needs generally educated graduates, who can be ‘molded’ by specific further training within the companies themselves. The later needs specifically qualified graduates, who can master in-company jobs and positions without much further training. Knowledge requirements in these companies are more specific. There are less internal training facilities available.

Transition from education to employment and early careers

A recent comparative study of the labour market position of graduates in higher education (HBO and WO) in the Netherlands compared with other EU countries, sheds some light on the transition from education to employment and the early careers of graduates (ROA, 2007). The study uses data from representative surveys of large numbers of graduates in the years 1999-2000. Some results are:

1. Compared to graduates in other EU countries, labour market entrance of Dutch HE graduates is relatively easy. The vast majority of graduates from both the colleges for higher professional education and the universities found a job within 3 months after graduation.
2. However, the quality of these first jobs of the graduates stays somewhat behind EU averages. Dutch graduates had somewhat lower salaries. More often, they had jobs under their graduation level and parttime jobs. And far more often, they had temporary contracts.
3. During their early careers Dutch graduates proceed relatively better than graduates in other countries. After 5 years from graduation they wer less unemployed. They had more income and earned above-average salaries. They had permanent jobs more often. But they still less had jobs corresponding with their type and level of qualification.
4. More than a half of the graduates got a job that can be typified as a 'mass generalist' job (f.i. commercial function). Another 20-25 percent got a job that can be typified as a 'mass specialist' job (f.i. teacher, nurse). Only one fifth of the master graduates got an 'elite specialist' job, like for instance medical specialist. Masters more often get an 'elite generalist' job, like for instanche business manager.

With respect to these indicators, the position of higher educated persons is rather comparable to the position of graduates from medium level secondary VET, in particular in the technical disciplines. The labour market position of these two groups, however, is much better than that of graduates from lower level vocational education and secondary general education. The later groups stay unemployed for longer periods and get more precarious, less rewarding jobs.

Discrepancies between competences and job requirements

The ROA-study also presents some data about the (mis)match between competences and job requirements of the graduates in their first jobs.

1. Almost 60% of the Dutch master graduates said that their competences were adequatly used in their first job. However, 30% of the graduates also had the experience that they had not sufficiënt knowledge and skills to meet the requirments of the first job. This is a high percentage compared to the other countries in the study.
2. After 5 years, the situation has changed a bit. Now almost 80% of the graduates state that their competences are used adequately. But still 25% of the graduates says that their knowledge and skills are not sufficiënt to meet (new) job requirements.
3. One third of all graduates thinks their job provides good career opportunities. For the masters it is 40%. This is a lower percentage than in several other EU countries in the study.
4. A majority of 70% of the graduates is satisfied or even very satisfied with the job they actually have. This is on EU average.
5. Between 60 and 70% of the graduates states that their education has given them a good basis to start work, a good basis to execute their present job, a good basis for further training and a good basis for a future career.

In general, these data do not give a negative picture. They reveal some weaknessess, however. A substantial number of graduates experiences shortages of knowledge and skills in relation to requirements of work, in their first job and also at a later stage in their career. A majority of graduates - though satisfied with their present job - is not optimistic about opportunities to make a career. These data point to qualitative matching problems, at labour market entrance and during their further professional careers.

These problems were also signalled in interviews conducted for this study. Some experts see them as a consequence of the gap that still exists between the education system and the labour market e.g. the business community. Both systems operate according to different logics, both consist of powerfull institutions, inclined to preserve and safeguard vested interests. It is not easy to establish interconnections in that context. Where interconnections and communication are lacking, mismatches easily can occur.

Technicians problem?

Some interview partners contest the need of greater number of graduates in natural sciences and technical disciplines. This debate is hyped, in their view, by politicians, media and a strong economic lobby. The Dutch labour market has changed strongly during the past decades, but more in the direction of a service economy, that requires more graduates in alpha and gamma then in beta fields. Commercial sectors are important now. Creative sectors will become increasingly important in the future. Health care, social care, social therapy will require large numbers of staff. Higher education should focus on these more general professional fields.

Conclusion

Initial HE is clearly not the end of qualification for graduates. Many graduates continue training after graduation in private systems established by the companies and institutes that employ them. These systems seem to be highly selective. A substantial number of graduates of higher education reports qualitative mismatches, at labour market entrance and at later stages in their careers. Many of them seem to run a risk of getting stuck in inflexible career paths.

What is stressed by several experts is the need for adequate training provisions outside the educational system and better connections between these private provisions and initial higher education. That might prevent risks of obsoletion of knowledge of professional workers at the labour market, in labour organisations, in professional contexts. It is a challenges for social and educational policy to establish relationships to make these subsystems effectively work together.

6. Bibliography

- ADVIESRAAD VOOR WETENSCHAP EN TECHNOLOGIEBELEID (2003) *Netwerken met kennis – Kennisabsorptie en kennisbenutting door bedrijven*. Den Haag.
- ADVIESRAAD VOOR WETENSCHAP EN TECHNOLOGIEBELEID (2004) *Tijd om te oogsten – Vernieuwing in het innovatiebeleid*. Den Haag.
- INNOVATIEPLATFORM (2006), *Kennisinvesteringsagenda 2006-2016*. Den Haag: IP.
- Kabinetsnota (2007), *Samen werken, samen leven - Beleidsprogramma Balkenende IV, 2007-2011*, Den Haag: SDU.
- MINISTERIE VAN OCW (2006) *Memorie van Toelichting Wetsvoorstel Hoger Onderwijs en Onderzoek*, Den Haag: OCW.
- MINISTERIE VAN SZW (2004) *Nationaal Actieplan Werkgelegenheid 2004,* Den Haag: SZW.
- MINISTERIE VAN SZW (2007) *Actieprogramma - Iedereen doet mee*, SZW, Den Haag: SZW.
- MINISTERIE VAN SZW (2007) *Progress report on the Dutch National Reform Programme for 2005-2008 – in the context of the Lisbon Strategy*, Den Haag: SZW.
- RAAD VOOR HET HOGER BEROEPSONDERWIJS *Kadernotitie Hogeschool in de kennissamenleving: voetnoot of fundament?* Den Haag: HBO-Raad
- RESEARCHCENTRUM VOOR ONDERWIJS EN ARBEIDSMARKT (2007), *Afgestudeerden van het hoger onderwijs in Nederland in vergelijking met andere landen.* Maastricht: ROA.
- SOCIAAL-ECONOMISCHE RAAD (2006), *Welvaartsgroei door en voor iedereen*, Den Haag: SER.